

## CONTINUOUSLY TUNABLE RESONANT CAVITY

### ABSTRACT

A tunable resonant system comprising a resonant cavity apparatus including at least one cavity wall (150, 151, 152, 153, 154, 155) made of a conductive material and arranged to form a resonant cavity (102), and a method for varying the resonant characteristics of the tuned resonant cavity (102). The conductive material can be steel, brass, copper, ferrite and/or Iron-nickel alloy. At least one slot (104) can be provided in a wall (150, 151, 152, 153, 154, 155) of the resonant cavity for coupling energy in and out of the resonant cavity. A fluidic dielectric (108) is disposed within the resonant cavity (102). A fluid control system (101) can be provided for selectively varying a composition of the fluidic dielectric(108) to dynamically modify a frequency response of the resonant cavity (102).